SEQUENCE LISTING

<110> ReproCELL Inc., and EMA, Hideo

<120> PROTEIN SUSTAINING UNDIFFERENTIATED STEM CELLS

<130> TR001PCT

<140> PCT/JP02/02285
<141> 2002-3-11

<160> 25

<170> PatentIn Ver. 2.1

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Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala
50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln
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Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly
100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro
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His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
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Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu
145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr
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Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys
180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His
195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys
210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn
225 230 235 240

Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys
245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln
260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys
275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu
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Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys
305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His
325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala
340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp
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<213> Homo sapiens

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Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala
50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln
85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly
100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro
115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asp Val Ile Val Met Asn Ser Glu
145 150 155 160

Gly Asn Thr Ile Leu Gln Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr
165 170 175

Cys Leu Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys
180 185 190

Asn Glu Arg Arg Ile Cys Glu Cys Pro Asp Gly Phe His Gly Pro His
195 200 205

Cys Glu Lys Ala Leu Cys Thr Pro Arg Cys Met Asn Gly Gly Leu Cys
210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn
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Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys
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Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln
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Cys Glu Ile Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys
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Ile Gly Lys Ser Lys Cys Lys Cys Ser Lys Gly Tyr Gln Gly Asp Leu
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Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys
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His Glu Pro Asn Lys Cys Gln Cys Gln Glu Gly Trp His Gly Arg His
325 330 335

Cys Asn Lys Arg Tyr Glu Ala Ser Leu Ile His Ala Leu Arg Pro Ala
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<212> DNA
<213> Rattus norvegicus

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<213> Rattus norvegicus

<400> 6

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Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
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Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala
    50                  55                  60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
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Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ser Gly Gln
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Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly
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Ile Met Ala Asp Pro Thr Val Asn Val Pro Arg Leu Gly Thr Val Pro
        115                 120                 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
    130                 135                 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu
145                 150                 155                 160

Gly Asn Pro Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr
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Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys
            180                 185                 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His
        195                 200                 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys
    210                 215                 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn
225                 230                 235                 240

Cys Asp Lys Ala Asn Cys Ser Ala Thr Cys Phe Asn Gly Gly Thr Cys
                245                 250                 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln
            260                 265                 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys
        275                 280                 285

Ile Gly Lys Ser Lys Ser Val Cys Glu Pro Gly Cys Gly Ala His Gly
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Thr Cys His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly
305                 310                 315                 320
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Arg His Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg
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<211> 1125
<212> DNA
<213> Xenopus sp.

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<211> 374
<212> PRT
<213> Xenopus sp.

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35 40 45

Asp Ile Leu Ile Val Ala Glu Gly Lys Met Ala Pro Phe Thr His Asp
50 55 60

Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile Pro Val Asn Ile His
65 70 75 80

Ala Met Asn Phe Thr Trp Gln Ala Thr Gly Gln Ala Glu Tyr Phe Tyr
85 90 95

Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly Ile Met Ala Asp Pro
100 105 110

Thr Val Asn Met Pro Leu Leu Gly Thr Val Pro His Lys Ala Thr Val
115 120 125

Ile Gln Val Gly Phe Pro Cys Leu Gly Asn Gln Asp Gly Val Ala Ala
130 135 140

Phe Glu Val Asn Val Ile Val Met Asn Ser Glu Gly Asn Val Ile Leu
145 150 155 160

Gln Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr Cys Gln Gln Ala Lys
165 170 175

Cys Thr Gly Gly Cys Arg Asn Gly Gly Phe Cys Asn Asp Arg His Val
180 185 190

Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His Cys Glu Lys Ala Leu

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        195                 200                 205

Cys Met Pro Arg Cys Met Asn Gly Gly Leu Cys Val Thr Pro Gly Leu
    210                 215                 220

Cys Ile Cys Pro Pro Gly Tyr Tyr Gly Ile Asn Cys Asp Lys Val Asn
225                 230                 235                 240

Cys Thr Thr His Cys Leu Asn Gly Gly Thr Cys Phe Tyr Pro Gly Lys
                245                 250                 255

Cys Ile Cys Pro Ser Gly Tyr Glu Gly Glu Gln Cys Glu Thr Ser Lys
            260                 265                 270

Cys Gln Gln Pro Cys Arg Asn Gly Gly Lys Cys Ser Gly Lys Asn Lys
        275                 280                 285

Cys Lys Cys Ser Lys Gly Tyr Gln Gly Asp Leu Cys Ser Lys Pro Val
    290                 295                 300

Cys Glu Pro Ser Cys Gly Ala His Gly Thr Cys Ile Glu Pro Asn Lys
305                 310                 315                 320

Cys Gln Cys Lys Glu Gly Trp Asn Gly Arg Tyr Cys Asn Lys Lys Tyr
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Gly Ser Asn Leu Met Asn Ala Leu Arg Pro Thr Gly Ser Arg Asn Arg
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<212> DNA
<213> Danio rerio

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<213> Danio rerio

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            20                  25                  30

Thr Met Tyr Met Trp Ile Asp Ala Asn Gln Ala Arg Ile Leu Ile Gly
        35                  40                  45

Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala Pro Phe
    50                  55                  60
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Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile Pro Val
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Asn Ile His His Val Asn Phe Thr Trp Gln Ala Thr Asp Gln Ala Glu
85 90 95

Tyr Phe Tyr Glu Phe Gln Thr Leu Arg Ser Leu Asp Lys Asp Ile Met
100 105 110

Asp Asp Pro Thr Val Asn Val Pro Leu Leu Gly Ser Val Pro His Lys
115 120 125

Ala Ser Val Val Gln Val Gly Phe Pro Cys Arg Gly Asp Gln Asp Gly
130 135 140

Val Ala Ala Phe Glu Val Thr Ile Leu Val Met Asp Ala Gly Gly Asn
145 150 155 160

Ile Ile Leu Arg Thr Pro His Asn Ala Ile Phe Phe Lys Thr Cys Gln
165 170 175

Arg Ala Lys Cys Pro Gly Gly Cys Arg Asn Gly Gly Tyr Cys Asn Glu
180 185 190

Arg Gln Val Cys Glu Cys Gln Asp Gly Phe Tyr Gly Val His Cys Glu
195 200 205

Lys Ala Leu Cys Ser Pro Arg Cys Leu Asn Gly Gly Leu Cys Met Ser
210 215 220

Pro Gly Val Cys Ile Cys Pro Pro Gly Tyr Phe Gly Ser Ser Cys Glu
225 230 235 240

Arg Ala Asn Cys Ser Thr Thr Cys Leu Asn Gly Gly Thr Cys Phe His
245 250 255

Pro Gly Lys Cys Ile Cys Ala Val Ser Phe Glu Gly Val Arg Cys Glu
260 265 270

Leu Ser Lys Cys Arg Gln Pro Cys Arg Asn Gly Gly Lys Cys Thr Gly
275 280 285

Arg Asn Lys Cys Lys Cys Ser Lys Gly Tyr His Gly Asp Leu Cys Ser
290 295 300

Lys Ala Val Cys Glu Pro Ser Cys Gly Ala His Gly Thr Cys Val Glu
305 310 315 320

Pro Asn Arg Cys Gln Cys Arg Glu Gly Trp His Gly Arg His Cys Asn
325 330 335

Lys Arg Phe Arg Gly Gly Val Ser Asn Ser Gln Arg Val Ser Pro Ser
340 345 350

Lys His Lys Ser Pro Ser Val Ala Ala Ala Lys Glu Ala Pro Glu Thr
355 360 365

Ser Gln Pro Ser Glu Thr Asn Tyr Val Val
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<210> 11
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<212> DNA
<213> Artificial Sequence

<220>
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<210> 12
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<212> DNA
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<210> 13
<211> 4817
<212> DNA
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cggatacata tttgaatgta tttagaaaaa taaacaaata ggggttccgc gcacatttcc 4800
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<210> 14
<211> 1140
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 14

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gacgcccatc aggctagagt gctcatagga tttgaagaag accttctgat tgtctcggag 180
gggaaaatgg ccccctttac acatgatttc aggaaagccc aacaaagaat gccagccatt 240
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tacgagttcc tgtctctgcg ctccctggat aaaggcatca tggcagatcc aactgtcaat 360
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ccggatgggt tctacgggcc tcactgtgag aaagccctgt gcatacccog atgtatgaac 660
ggtggtctgt gtgtcactcc tggcttctgc atctgccccc ctggatttta cggtgtcaac 720
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ccttcactta aaaaggctga ggatagaagg gatccacctg aatccaatta catctggtga 1140
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<210> 15
<211> 379
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 15

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Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser
 1               5                  10                  15

Ile Leu Pro Cys Leu Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro
            20                  25                  30

Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
        35                  40                  45

Ile Gly Phe Glu Glu Asp Leu Leu Ile Val Ser Glu Gly Lys Met Ala
    50                  55                  60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
65                  70                  75                  80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln
                85                  90                  95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly
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100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro
115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu
145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr
165 170 175

Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys
180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His
195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys
210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn
225 230 235 240

Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys
245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln
260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys
275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu
290 295 300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys
305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His
325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala
340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp
355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp
370 375

<210> 16
<211> 1140
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 16
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gacgcccatc aggctagagt gctcatagga tttgaagaag acattctgat tgtctcggag 180
gggaaaatgg ccccctttac acatgatttc aggaaagccc aacaaagaat gccagccatt 240
cctgtcaata tccactccat gaattttacc tggcaagctg cggggcaggc agaatacttc 300
tacgagttcc tgtctctgcg ctccattgat aaaggcatca tggcagatcc aactgtcaat 360
gtcccttgc tgggaacagt gcctcacaag gcatcagttg ttcaagttgg tttcccgtgt 420
ctcggcaaac aagacggggt agcagcattt gaagtgaatg tgattgtcat gaattctgaa 480
ggcaacacca tccttaggac ccctcagaat gccatcttct ttaaaacatg tcaacaagct 540
gagtgtcccg gagggtgtcg aaatggaggt ttttgtaacg aaaggcgggt ctgcgagtgt 600
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ggtggtctgt gtgtcactcc tggcttctgc atctgccccc ctggattcta cggtgtcaac 720
tgtgacaaag caaactgctc aaccacctgc tttaatggag ggacctgctt ttacccggga 780
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cacgaaccca acaagtgcca gtgtcgagag ggctggcacg gcagacactg caataagagg 1020
tatggagcca gcctcatgca tgccccgagg ccagcaggcg ccgggctgga gcgacacacg 1080
ccttcactta aaaaggctga ggatagaagg gatccacctg aatccaattg catctggtga 1140

<210> 17
<211> 379
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 17
Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser
1 5 10 15

Ile Leu Pro Cys Leu Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro
20 25 30

Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala
50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln
85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Ile Asp Lys Gly
100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro
115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu
145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr
165 170 175

Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys
180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His
195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys
210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn
225 230 235 240

Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys
245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln
260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys
275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu
290 295 300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys
305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His
325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala
340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp
355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp
370 375

<210> 18
<211> 1140
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 18
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gacgcccatc aggctagagt gctcatagga tttgaagaag acattctgat tgtctcggag 180
gggaaaatgg ccccctttac acatgatttc aggaaagccc aacaaagaat gccagccatt 240
cctgtcaata tccactccat gaattttacc tggcaagctg cggggcaggc agaatacttc 300
tacgagttcc tgtctctgcg ctccctggat aaaggcatca tggcagatcc aactgtcaat 360
gtcccttgc tgggaacagt gcctcacaag gcatcagttg ttcaagttgg tttcccgtgt 420
ctcggcaaac aagacggggt agcagcattt gaagtgaatg tgattgtcat gaattctgaa 480
ggcaacacca tccttaggac ccctcagaat gccatcttct ttaaaacatg tcaacaagct 540
gagtgtcccg gagggtgtcg aaatgggagc ttttgtaacg aaaggcgggt ctgcgagtgt 600
ccggatgggt tctacgggcc tcactgtgag aaagccctgt gcataccccg atgtatgaac 660
ggtggtctgt gtgtcactcc tggcttctgc atctgccccc ctggattcta cggtgtcaac 720
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caaggagacc tgtgctctaa gccccgtctgc gagcctggct gtggtgccca cggaacctgc 960
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ccttcactta aaaaggctga ggatagaagg gatccacctg aatccaatta catctggtga 1140

<210> 19
<211> 379
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 19
Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser
1 5 10 15

Ile Leu Pro Cys Leu Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro
20 25 30

Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala
50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln
85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly
100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro
115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu
145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr

165 170 175

Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys
180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His
195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys
210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn
225 230 235 240

Cys Asp Lys Val Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys
245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln
260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys
275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu
290 295 300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys
305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His
325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala
340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp
355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp
370 375

<210> 20
<211> 1140
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 20
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gacgcccatc aggctagagt gctcatagga tttgaagaag acattctgat tgtctcggag 180
gggaaaatgg ccccctttac acatgatttc aggaaagccc aacaaagaat gccagccatt 240
cctgtcaata tccactccat gaattttacc tggcaagctg cggggcaggc agaatacttc 300
tacgagttcc tgtctctgcg ctccctggat aaaggcatca tggcagatcc aactgtcaat 360
gtccctttgc tgggaacagt gcctcacaag gcatcagttg ttcaagttgg tttcccgtgt 420
ctcggcaaac aagacggggt agcagcattt gaagtgaatg tgattgtcat gaattctgaa 480
ggcaacacca tcattaggac ccctcaggat gccatcttct ttaaaacatg tcaacaagct 540
gagtgtcccg gagggtgtcg aaatggaggc ttttgtaacg aaaggcgggt ctgcgagtgt 600
ccggatgggt tctacgggcc tcactgtgag aaagccctgt gcataccccg atgtatgaac 660
ggtggtctgt gtgtcactcc tggcttctgc atctgcccac ctggatttcg cggtgtcaac 720
tgtgacaaag caaactgctc aaccacctgc tttaatggag ggaccttgctt ttacccggga 780
aaatgtattt gccctcctgg actcgaggga gatcagtgtg aactcagcaa atgccccaa 840
ccctgccgaa atggaggtaa atgcattggt aaaagcaagt gtaagtgccc ggaaggttac 900
caaggagacc tgtgctctaa gcccgtctgc gagcctggct gtggtgccca cggaacctgc 960
cacgaaccca acaagtgcca gtgtcgagag ggctggcacg gcagacactg caataagagg 1020
tatggagcca gcctcatgca tgccccgagg ccagcaggcg ccgggctgga gcgacacacg 1080
ccttcactta aaaaggctga ggatagaagg gatccacctg aatccaatta catctggtga 1140

<210> 21
<211> 379
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial

Sequence

<400> 21
Met Ala Arg Arg Arg Ala Phe Pro Ala Phe Ala Leu Arg Leu Trp Ser
1 5 10 15

Ile Leu Pro Cys Leu Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro
20 25 30

Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala
50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln
85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly
100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro
115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu
145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr
165 170 175

Cys Gln Gln Ala Glu Cys Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys
180 185 190

Asn Glu Arg Arg Val Cys Glu Cys Pro Asp Gly Phe Tyr Gly Pro His
195 200 205

Cys Glu Lys Ala Leu Cys Ile Pro Arg Cys Met Asn Gly Gly Leu Cys
210 215 220

Val Thr Pro Gly Phe Cys Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn
225 230 235 240

Cys Asp Lys Ala Asn Cys Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys
245 250 255

Phe Tyr Pro Gly Lys Cys Ile Cys Pro Pro Gly Leu Glu Gly Asp Gln
260 265 270

Cys Glu Leu Ser Lys Cys Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys
275 280 285

Ile Gly Lys Ser Lys Cys Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu
290 295 300

Cys Ser Lys Pro Val Cys Glu Pro Gly Cys Gly Ala His Gly Thr Cys
305 310 315 320

His Glu Pro Asn Lys Cys Gln Cys Arg Glu Gly Trp His Gly Arg His
325 330 335

Cys Asn Lys Arg Tyr Gly Ala Ser Leu Met His Ala Pro Arg Pro Ala
340 345 350

Gly Ala Gly Leu Glu Arg His Thr Pro Ser Leu Lys Lys Ala Glu Asp
355 360 365

Arg Arg Asp Pro Pro Glu Ser Asn Tyr Ile Trp
370 375

<210> 22
<211> 558
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 22
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ctgctcctgc tgcgagcgga tgcagggcag ccacctgagg agagcttgta cctgtggatc 120
gacgcccatc aggctgagat gctcatagga tttgaagaag acattctgat tgtctcggag 180
gggaaaatgg ccccctttac acatgatttc aggaaagccc aacaagaat gccagccatt 240
cctgtcaata tccactccat gaatttacc tggcaagctg cggggcaggc agaatacttc 300
tacgagttcc tgtctctgcg ctccctggat aaagacatca tggcagatcc aactgtcaat 360
gtcccttgc tgggaacagt gcctcacaag gcatcagttg ttcaagttgg tttcccgtgt 420
ctcggcaaac aagacggggt agcagcattt gaagtgaatg tgattgtcat gaattctgaa 480
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<210> 23
<211> 185
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 23
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Ile Leu Pro Cys Leu Leu Leu Leu Arg Ala Asp Ala Gly Gln Pro Pro
20 25 30

Glu Glu Ser Leu Tyr Leu Trp Ile Asp Ala His Gln Ala Arg Val Leu
35 40 45

Ile Gly Phe Glu Glu Asp Ile Leu Ile Val Ser Glu Gly Lys Met Ala
50 55 60

Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile
65 70 75 80

Pro Val Asn Ile His Ser Met Asn Phe Thr Trp Gln Ala Ala Gly Gln
85 90 95

Ala Glu Tyr Phe Tyr Glu Phe Leu Ser Leu Arg Ser Leu Asp Lys Gly
100 105 110

Ile Met Ala Asp Pro Thr Val Asn Val Pro Leu Leu Gly Thr Val Pro
115 120 125

His Lys Ala Ser Val Val Gln Val Gly Phe Pro Cys Leu Gly Lys Gln
130 135 140

Asp Gly Val Ala Ala Phe Glu Val Asn Val Ile Val Met Asn Ser Glu
145 150 155 160

Gly Asn Thr Ile Leu Arg Thr Pro Gln Asn Ala Ile Phe Phe Lys Thr
165 170 175

Gln Leu Ala His His His His His His
180 185

<210> 24
<211> 717
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

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ttttgtaacg aaaggcgggt ctgcgagtgt ccggatgggt tctacgggcc tcactgtgag 180
aaagccctgt gcatacccca atgtatgaac ggtggtctgt gtgtcactcc tggcttctgc 240
atctgccccc ctggattcta cggtgtcaac tgtgaacaaag caaactgctc aaccacctgc 300

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gagcagtgtg aactcagcaa atgccccccaa ccctgccgaa atgggaggtaa atgcattggt 420
aaaagcaagt gtaagtgccc gaaaggttac caaggagacc tgtgctctaa gcccgtctgc 480
gagcctggct gtggtgccca cggaacctgc cacgaaccca acaagtgcca gtgtcgagag 540
ggctggcacg gcagacactg caataagagg tatggagcca gcctcatgca tgccccgagg 600
ccagcaggcg ccgggctgga gcgacacacg ccttcactta aaaaggctga ggataganggg 660
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<210> 25
<211> 238
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificial Sequence

<400> 25

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Ile Leu Pro Cys Leu Leu Leu Leu Leu Asp Cys Gln Gln Ala Glu Cys
            20                  25                  30

Pro Gly Gly Cys Arg Asn Gly Gly Phe Cys Asn Glu Arg Arg Val Cys
        35                  40                  45

Glu Cys Pro Asp Gly Phe Tyr Gly Pro His Cys Glu Lys Ala Leu Cys
    50                  55                  60

Ile Pro Arg Cys Met Asn Gly Gly Leu Cys Val Thr Pro Gly Phe Cys
65                  70                  75                  80

Ile Cys Pro Pro Gly Phe Tyr Gly Val Asn Cys Asp Lys Ala Asn Cys
                85                  90                  95

Ser Thr Thr Cys Phe Asn Gly Gly Thr Cys Phe Tyr Pro Gly Lys Cys
            100                 105                 110

Ile Cys Pro Pro Gly Leu Glu Gly Glu Gln Cys Glu Leu Ser Lys Cys
        115                 120                 125

Pro Gln Pro Cys Arg Asn Gly Gly Lys Cys Ile Gly Lys Ser Lys Cys
    130                 135                 140

Lys Cys Pro Lys Gly Tyr Gln Gly Asp Leu Cys Ser Lys Pro Val Cys
145                 150                 155                 160

Glu Pro Gly Cys Gly Ala His Gly Thr Cys His Glu Pro Asn Lys Cys
                165                 170                 175

Gln Cys Arg Glu Gly Trp His Gly Arg His Cys Asn Lys Arg Tyr Gly
            180                 185                 190

Ala Ser Leu Met His Ala Pro Arg Pro Ala Gly Ala Gly Leu Glu Arg
        195                 200                 205

His Thr Pro Ser Leu Lys Lys Ala Glu Asp Arg Arg Asp Pro Pro Glu
    210                 215                 220

Ser Asn Tyr Ile Trp Gln Leu Ala His His His His His His
225                 230                 235
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